Welcome to Clean Energy Virginia Webinar Series

Today's Topic: Distributed Generation Solar

We will begin in a few minutes

Virginia Department of Mines Minerals and Energy

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Housekeeping Rules

- Please mute your mic
- Please use the Q&A box to ask your questions
- We will hold a moderated Q&A session at the end of the presentation
- Any unanswered questions will be answered by the team during the coming week.

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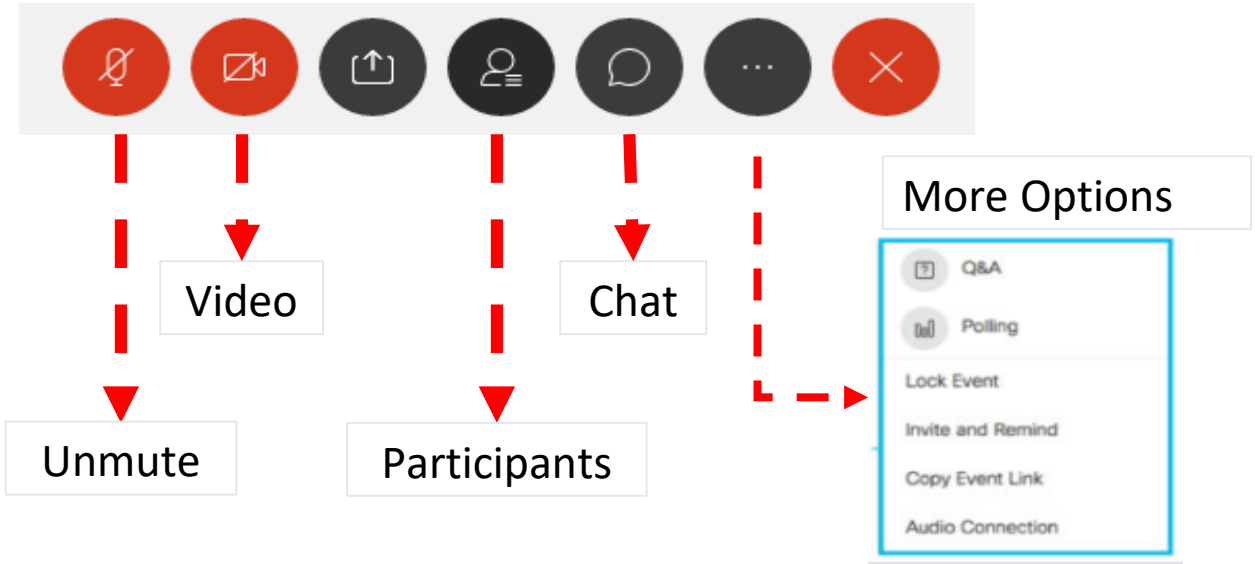
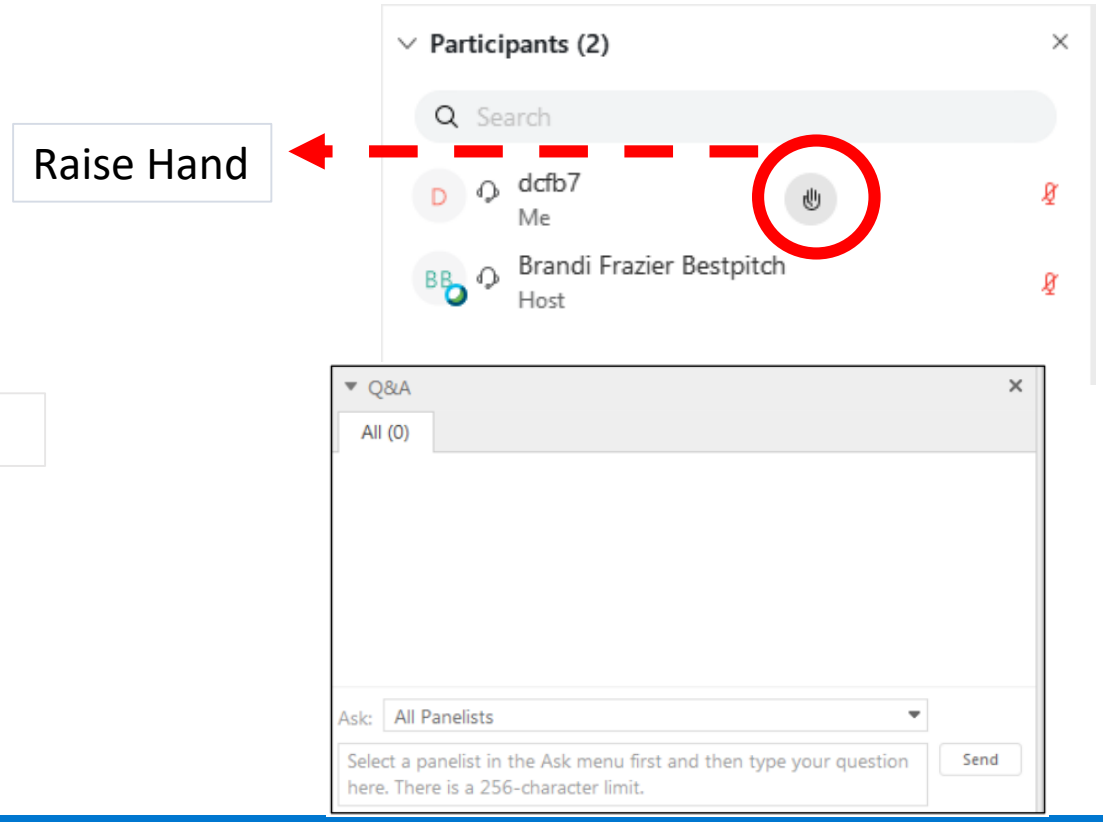
Submit Questions in Q&A on Right Panel

Housekeeping/Navigation

- **Navigation radials at the bottom of your WebEx Screen**



- **Participant Raise Hand & Q&A Panel on the right**



Clean Energy Virginia Webinar Series

Angela Navarro
Deputy Secretary of Commerce and Trade
Office of Governor Northam

Webinar Topics

Webinars will discuss the Commonwealth's clean energy policies and next steps, with a focus on the following subjects:

- Webinar 1: July 22, 2020 Energy Efficiency
- Webinar 2: July 29, 2020 Distributed Generation Solar
- Webinar 3: August 5, 2020 Energy Storage
- Webinar 4: August 12, 2020 Utility Scale Solar and Onshore Wind
- Webinar 5: August 19, 2020 Offshore Wind

Register Today: https://www.dmme.virginia.gov

Presentation Outline

I. VCEA Goals and Regulatory Changes
II. State and National Solar Energy Outlook: COVID-19 and Beyond
III. Distributed Generation (DG) Solar: Opportunities in Virginia
IV. Solarize and Cooperative Purchasing
V. DMME's Solar Resources and Programs
VI. Q&A

Guest Speakers

- ✓ Angela Navarro, *Office of Governor Northam*
- ✓ Maggie Clark, *Solar Energy Industries Association (SEIA)*
- ✓ Rachel Smucker, *MDV-SEIA*
- ✓ Aaron Sutch, *Solar United Neighbors (SUN)*
- ✓ Carrie Hearne, *Dept. of Mines, Minerals and Energy (DMME)*

Clean Energy Virginia Policy Objectives

- Transition Virginia's electric grid to 100% carbon-free resources by 2050
- Significant build-out of clean energy assets that will drive new investment across the Commonwealth
- Provide the landscape for clean energy businesses to expand or locate in the Commonwealth
- Ensure energy equity and environmental justice while providing benefits to historically economically disadvantaged communities

State Energy Goals: Executive Order 43

30% by 2030

Produce 30 percent of Virginia's electricity from renewable energy sources by 2030

100% by 2050

Produce 100 percent of Virginia's electricity from carbon-free sources by 2050

Energy Equity

Achieve energy goals in a just manner that advance social, energy, and environmental equity

Virginia Clean Economy Act

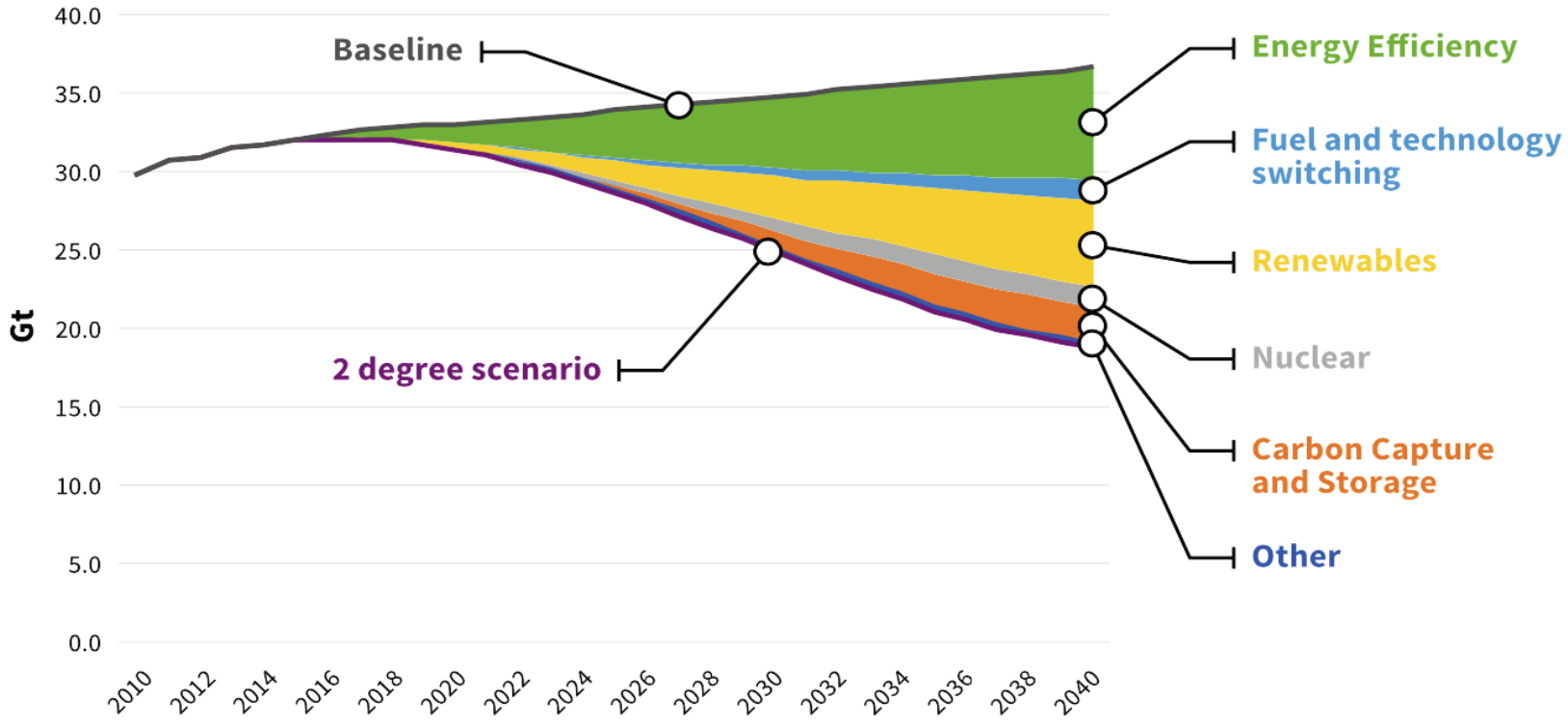
- **Establishes a mandatory renewable portfolio standard (RPS):**
  - Dominion Energy: 40% by 2030; 100% by 2045
  - Appalachian Power: 30% by 2030; 100% by 2050
- **Establishes a mandatory energy efficiency resource standard (EERS):**
  - Dominion Energy: 5% by 2025
  - Appalachian Power: 2% by 2025
- **Deems 16,100 MW of solar and onshore wind, 5,200 MW of offshore wind, and 2,700 MW of energy storage in the public interest.**

VCEA – Major Regulatory Changes

- Requires State Corporation Commission (SCC) to consider the ***social cost of carbon*** in any application to construct new generating facility
- The SCC must ensure development of new energy resources or facilities does not have disproportionate adverse impact on **historically economically disadvantaged communities** (**HEDCs**)
- Establishes a **Percentage of Income Payment Program** (**PIPP**) for low-income households to provide an alternative payment structure

Renewable Energy is Key to Carbon-Free

Figure 4. IEA *Global Energy Outlook* emissions scenario with temperature increase limited to 2 degrees



Source: ACEEE graph using data from International Energy Agency (IEA). www.aceee.org/sites/default/files/publications/researchreports/u1604.pdf

Worker Health & Safety During COVID-19 Pandemic

- Virginia Department of Labor and Industry's Safety and Health Codes Board adopted the first statewide emergency workplace safety standards in the U.S. in response to COVID-19
- These standards mandate appropriate personal protective equipment, sanitation, social distancing, infectious disease preparedness and response plans, record keeping, training, and hazard communications in workplaces across the Commonwealth
- Opportunities to innovate new processes and technologies to protect health and safety

Distributed Generation Solar Webinar Partners

SEIA Solar Energy Industries Association®

VIRGINIA ADVANCED ENERGY ECONOMY

30 YEARS MDV-SEIA

SOLAR UNITED NEIGHBORS OF VIRGINIA

DMME Virginia Department of Mines Minerals and Energy

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Audience Poll Question

What type of organization do you represent?

(Please respond using poll in side panel)

Solar Outlook in Virginia and Beyond

Maggie Clark

State Affairs Senior Manager, Southeast

SEIA Solar Energy Industries Association®

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Virginia Solar Industry – COVID-19 Impacts

The COVID-19 Pandemic has caused significant economic damage to solar companies in Virginia:

- Through June of 2020, the Virginia solar industry will employ 12,804 workers, rather than the 14,819 that was originally forecasted
- The Virginia solar industry will install 292.7 megawatts (MW) of capacity in Q2 2020, 19% less solar capacity than pre-COVID forecasts

The U.S. solar industry as a whole will face significant reductions:

- Through June 2020, there will be 38% fewer solar workers nationwide than pre-COVID forecasts
- The U.S. solar industry will install just 3 GW of solar in Q2 2020, 37% less than pre-COVID forecasts
- Q2 losses will result in $3.2 billion not invested in the U.S. economy in 2020

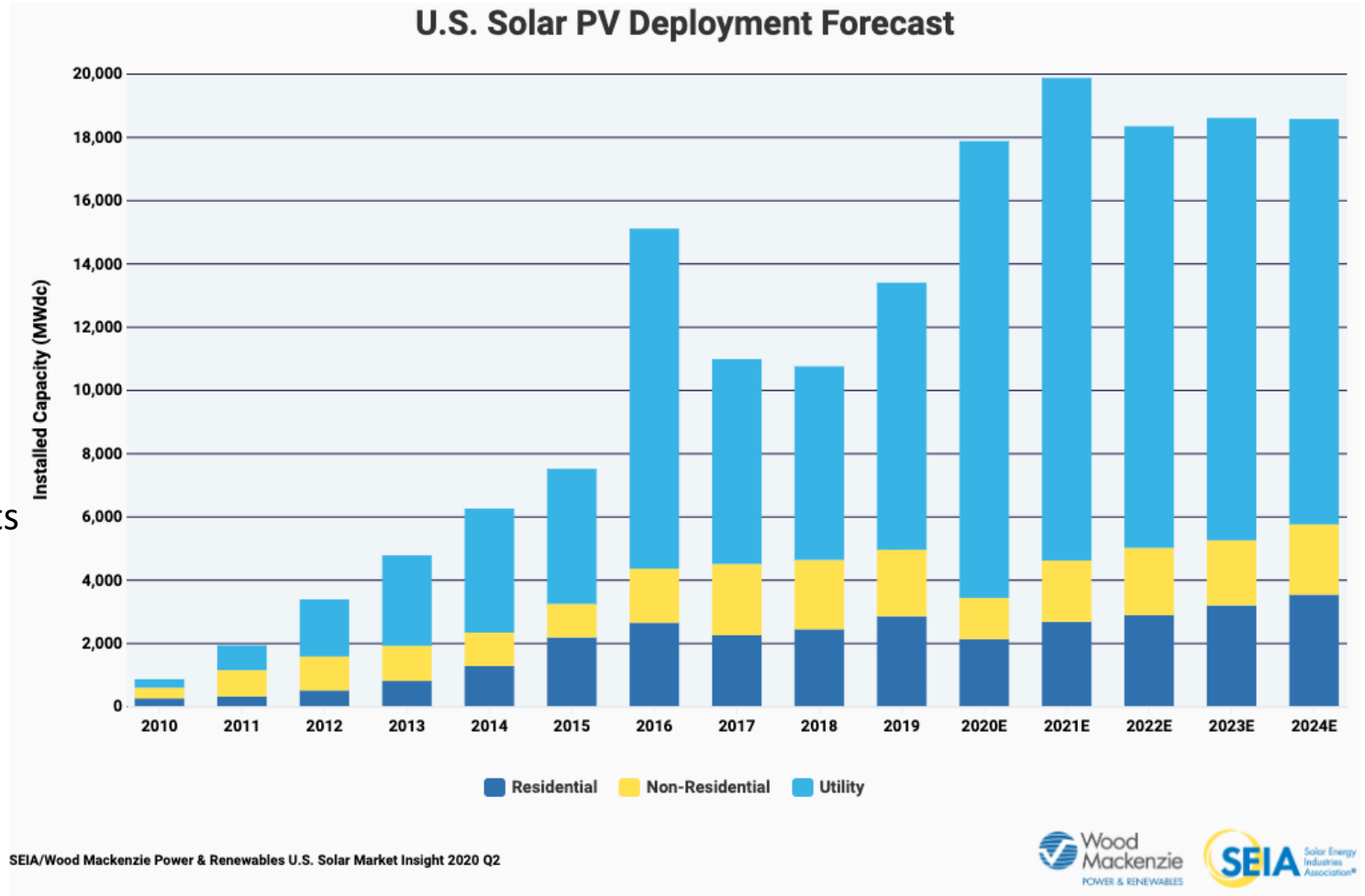
U.S. Solar PV Growth Forecast

After 2% market decline in **2018** attributed to **tariff impacts,** utility-scale growth resumed in 2019 with more than **13 GW installed.**

Coronavirus is expected to lead to a **31% decline** in 2020 **distributed markets**, but most utility-scale work has continued, and a record pipeline will carry the industry to record deployment in 2020.

Beyond 2020, the pandemic places all market segments in **considerable uncertainty**, resulting in a **downward revision of 3.6 GW** to the 2020 – 2025 forecasts.

Growth will be **contingent** on economic recovery to include consumer/business demand and financial market stability.



SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2020 Q2

Wood Mackenzie POWER & RENEWABLES

SEIA Solar Energy Industries Association

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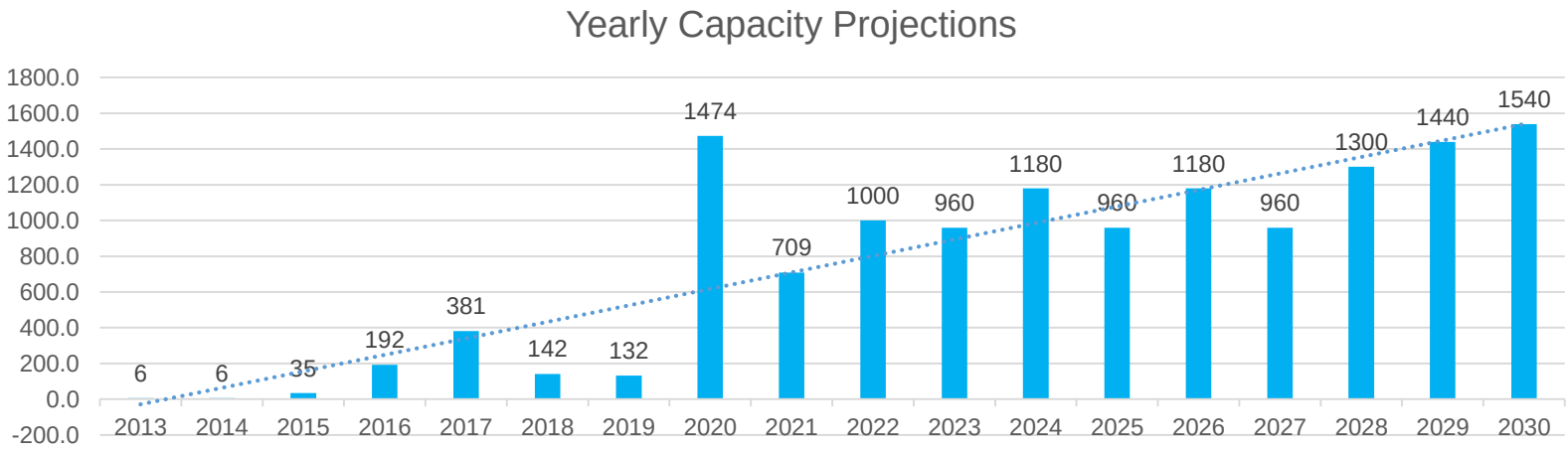
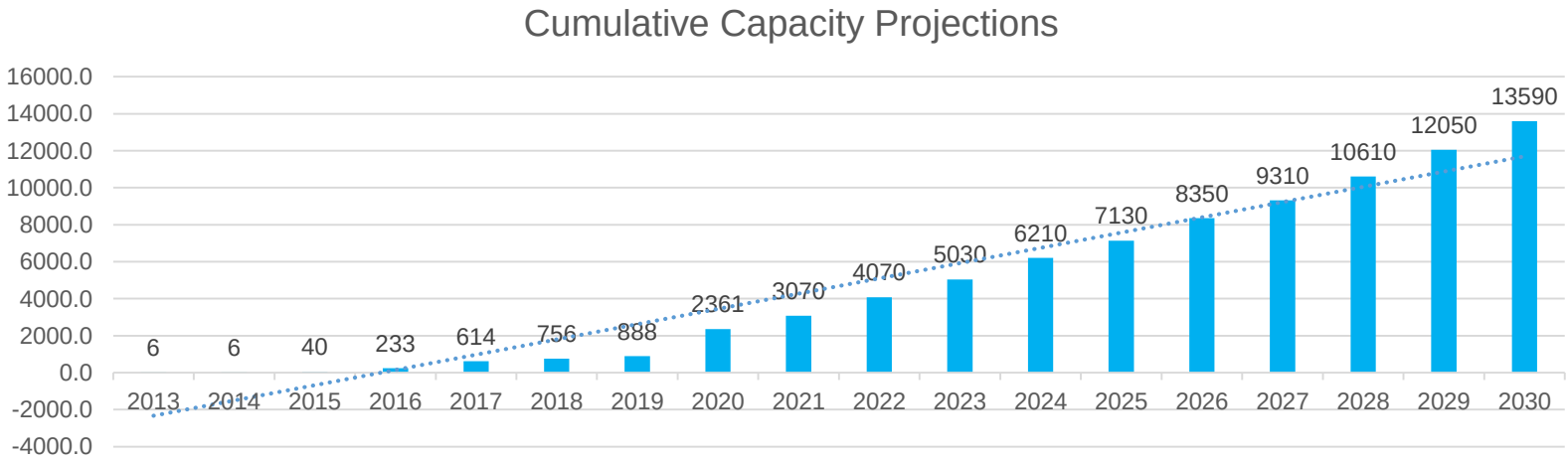
Virginia Solar Industry – Capacity Projections

The VCEA has rapidly increased projections for utility scale solar procurement during the RPS program.





Distributed Generation in Virginia

Rachel Smucker

Virginia Policy and Development Manager

30 YEARS

MDV-SEIA

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Terminology and Acronyms

- ✓ Distributed Generation (DG) Solar
- ✓ Renewable Portfolio Standard (RPS)
- ✓ Renewable Energy Certificates (RECs)
- ✓ Deficiency Payments
- ✓ Net Metering
- ✓ Power Purchase Agreements (PPAs)

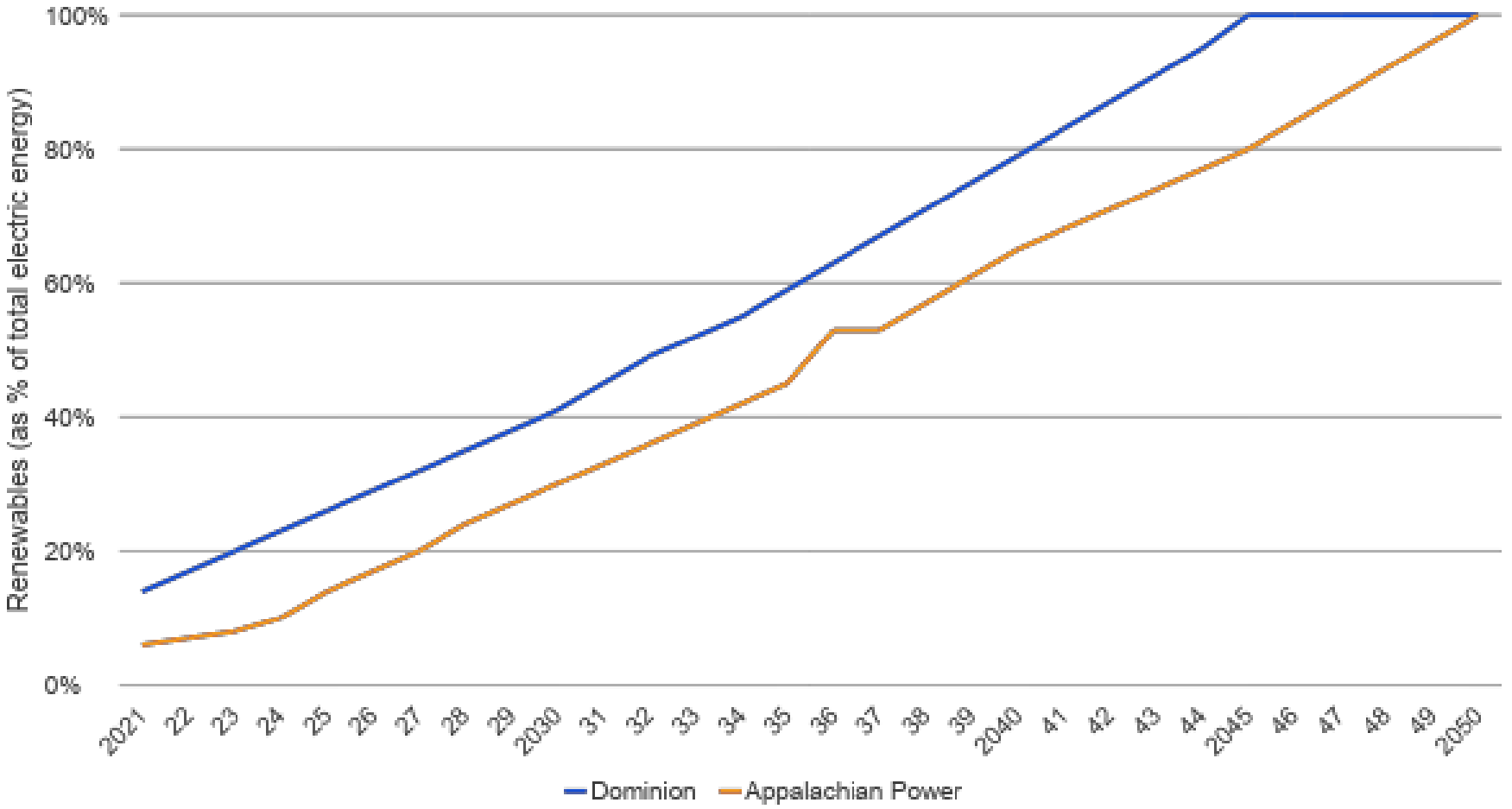
New Solar Landscape in Virginia

- Mandatory Renewable Portfolio Standard (RPS), DG carve-out
- Net Metering Cap Increases from 1% to 6% system-wide
- Third party Power Purchase Agreements (PPAs)
  Capacity raised from 50 MW to 1,000 MW for Dominion
  Capacity raised from 7 MW to 40 MW for APCO
- Removal of standby charges in APCO territory
- New Shared Solar, Multifamily Shared Solar Programs
- Homeowner Association barriers removed

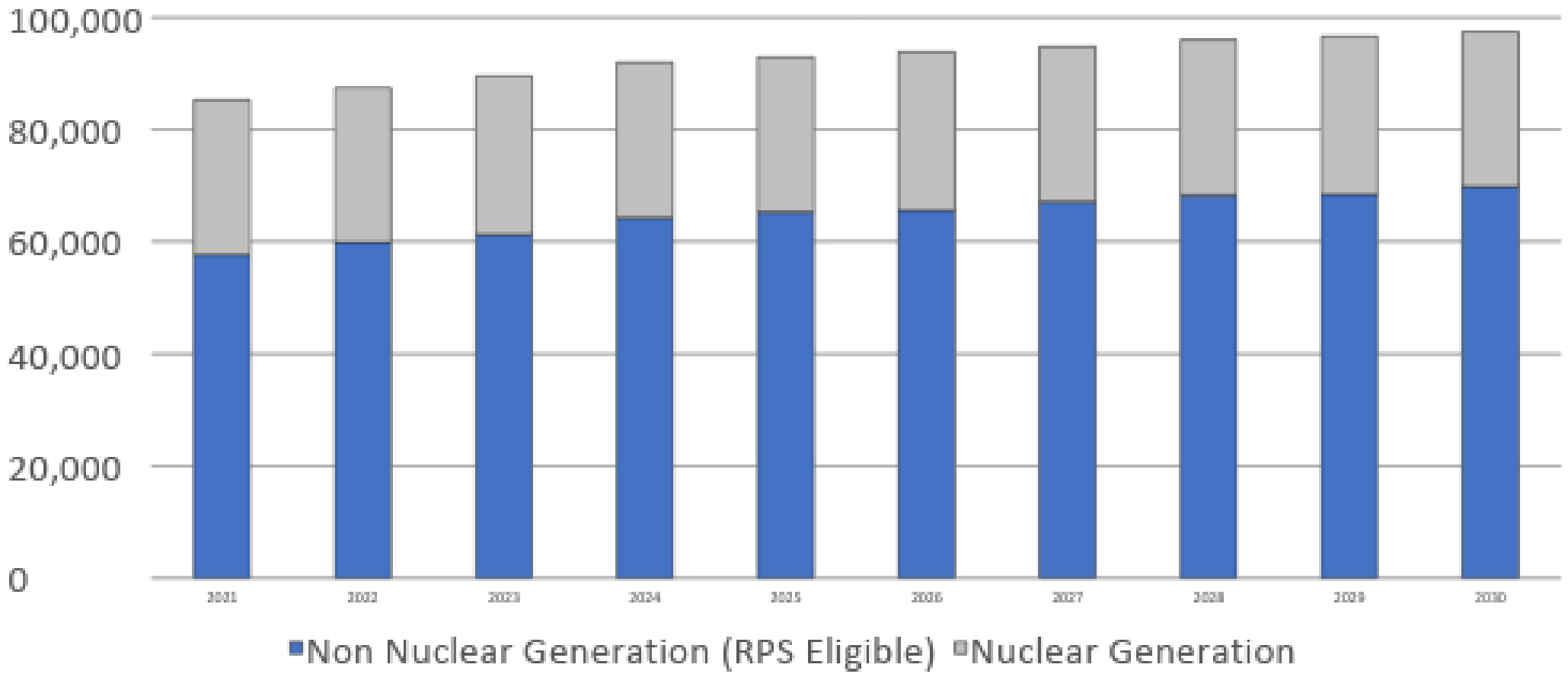
Photo credit: GRID Alternatives Mid Atlantic

Annual RPS Program Requirements, Dominion & APCO

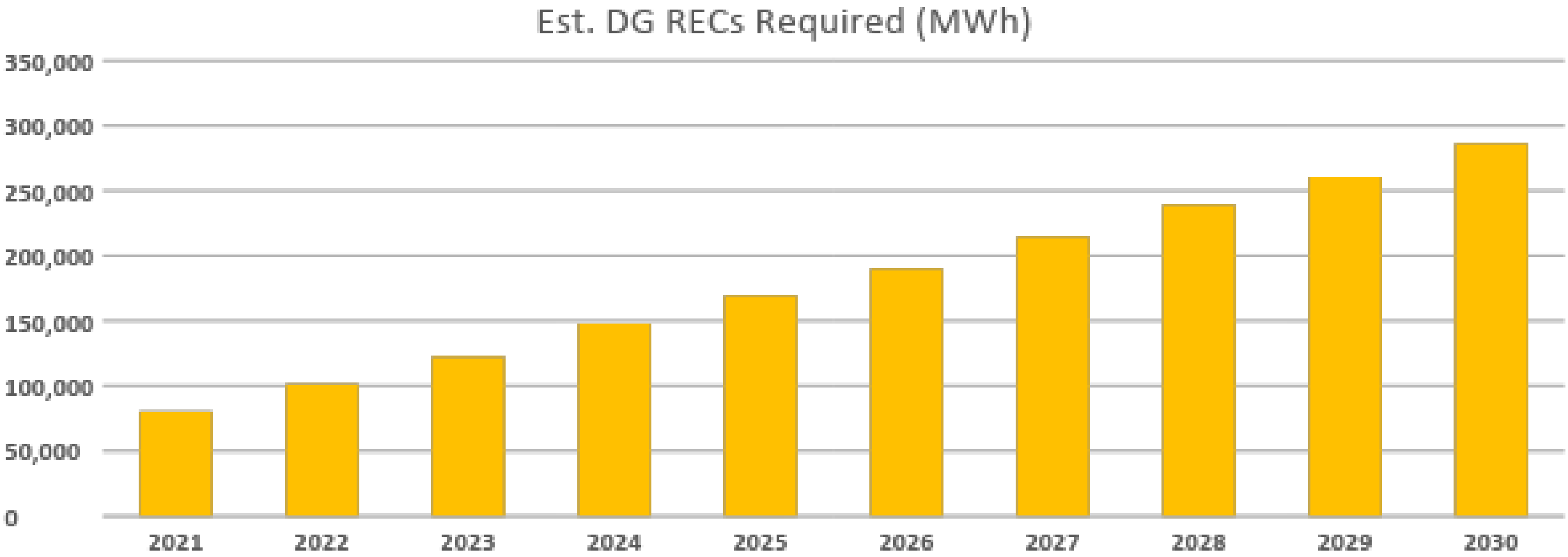
Clean Energy Standard (RPS) 2021 - 2050



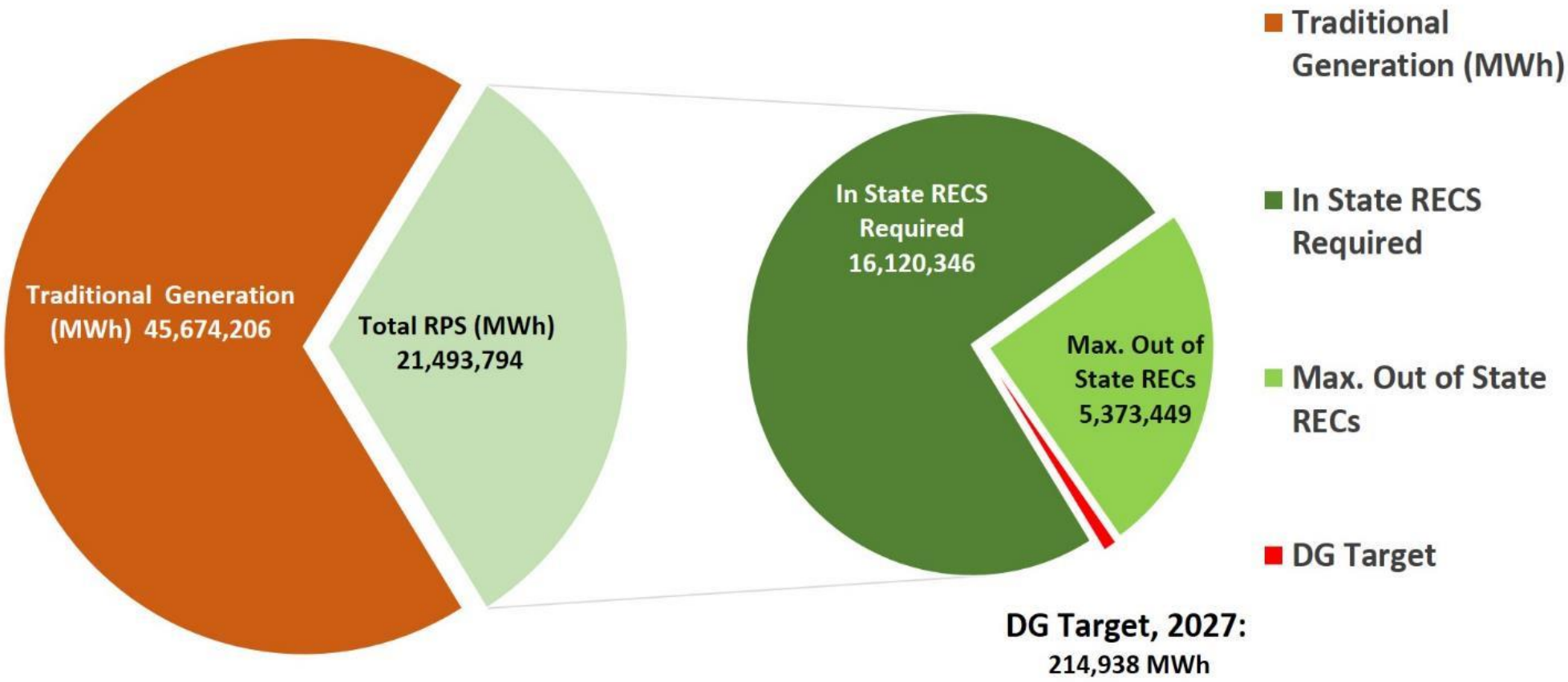
Projected Annual Sales (GWh): Dominion (VA) '21-'30



VA DG Carveout Represents 1% of RPS RECs Req'd



Scenario of Dominion Generation in Year 2027
DG Solar Represents Small Portion of Total Compliance Obligation



What happens if there are not enough DG RECs?

For example, in 2027:

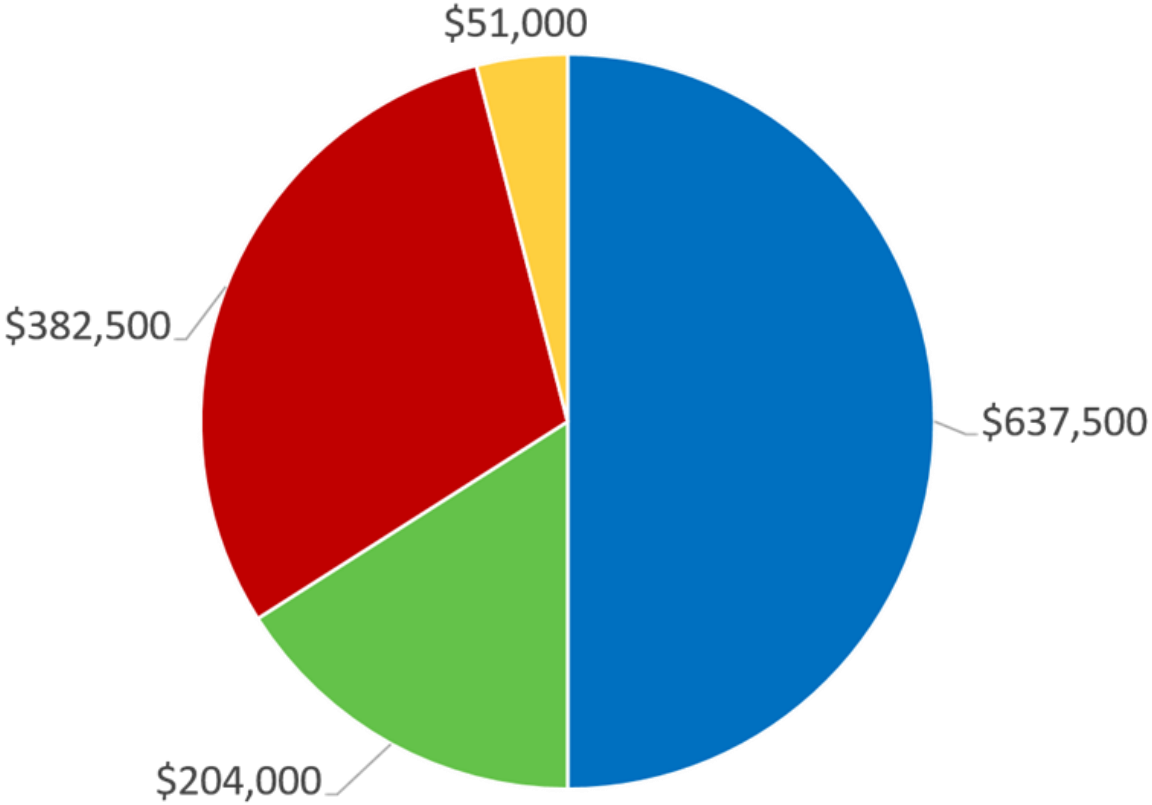
- Dominion must purchase 215,000 DG RECs
- This is equivalent to 215,000 MWh, or approximately 180 MW of solar projects that are 1 MW or smaller

Let's say Dominion manages to procure only 198,000 DG RECs:

- Leaves a 17,000 REC shortfall
- Dominion must pay a DG "**Deficiency Payment**" of $75 per DG REC
- 17,000 * $75 = **$1,275,000**

Deficiency Payment Allocation Scenario, Dominion 2027 (*hypothetical*)

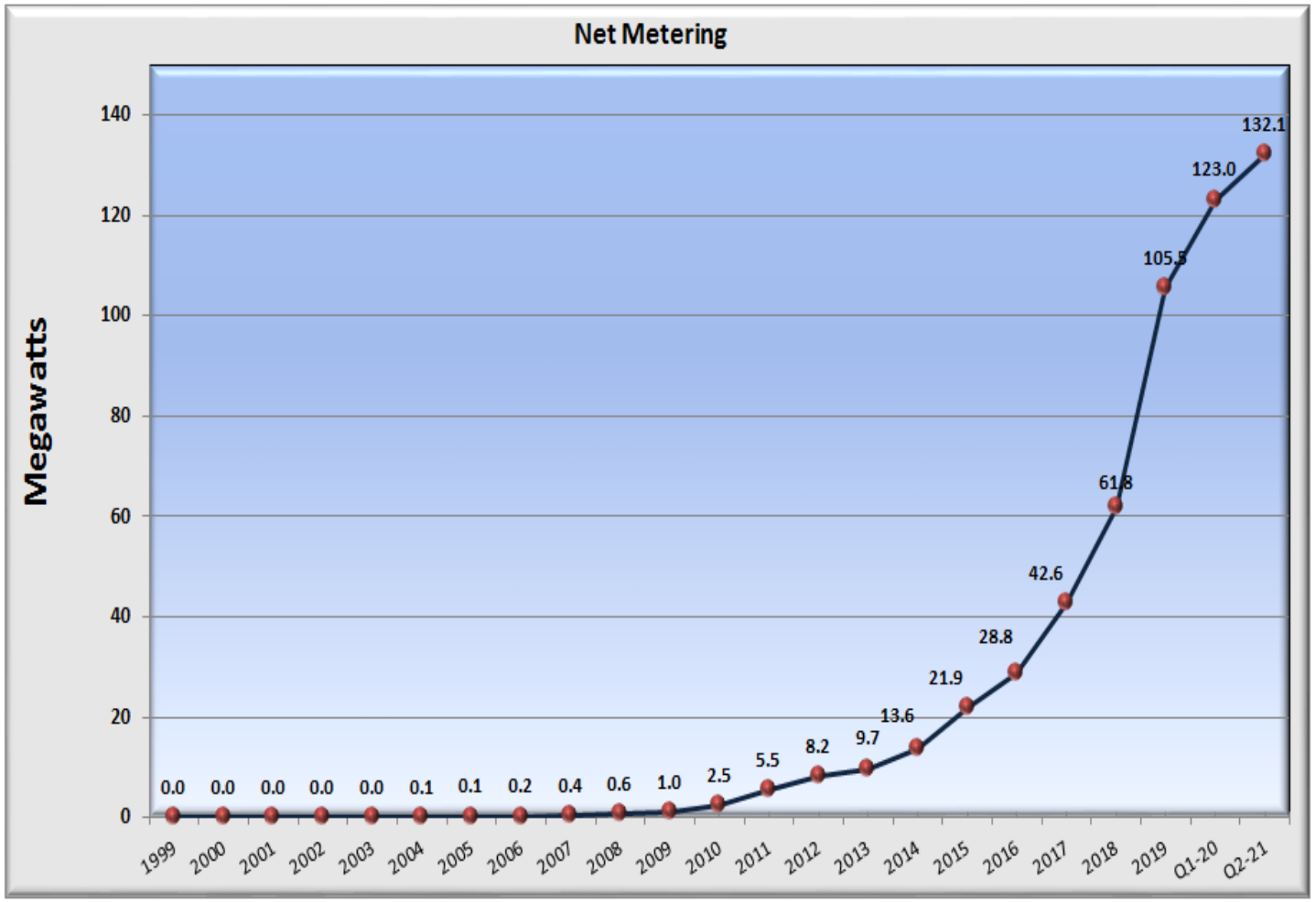
- Job Training in Historically Disadvantaged Communities
- Energy Efficiency for Public Facilities
- Renewable Energy In Historically Disadvantaged Communities
- Administration



Net Metering Cap Increase

- **Cap increased** from **1% to 6%** of utility's adjusted Virginia peak-load forecast for previous year
  5% available to all customers; 1% reserved for low-income customers
- **Residential** size limit increased from 20 kW to 25 kW
- **Nonresidential** size limit increased from 1 MW to 3 MW
- Increases capacity of expected annual energy consumption to 150% for Dominion; no change for APCO
- **SCC** to conduct review of net metering program when each utility approaches the cap

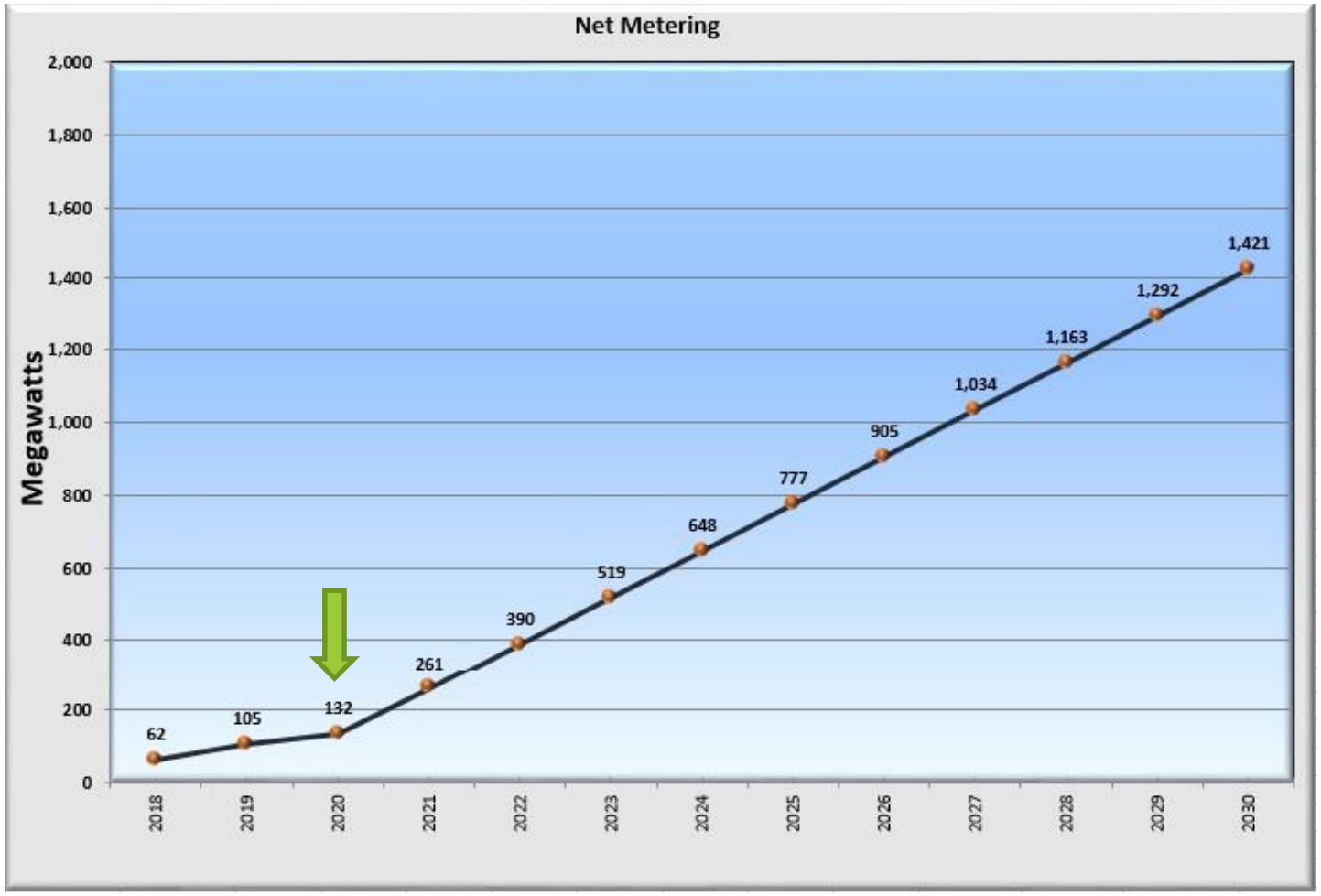
Net Metering Customer Growth Since 1999



132 MW, Q2 2020

Source data:
Virginia State Corporation Commission,
Compiled by DMME

Target DG Growth to reach 6% by 2030



DG Solar could grow from 132 MW (current) to **1,421 MW by 2030** for Virginia's investor-owned utilities

Third Party Power Purchase Agreements (PPAs)

- **Dominion** service territory: Program increased from 50 MW to 1,000 MW
  - ✓ **500 MWs** for Residential and Business customers
  - ✓ **500 MWs** for Governmental Accounts
- **APCO** service territory: Program increased from 7 MW to 40 MW
  - ✓ **40 MW** program capacity
  - ✓ Removes eligibility restriction
- **Old Dominion Power** (ODP): Program established at 10 MW
  - ✓ **10 MW** maximum capacity for *Residential and Business customers*
  - ✓ No cap for governmental customers
- *Low-income customers exempt from minimum DG facility size limitations*

Audience Poll Question

Q: Do you think the market opportunity has grown based on a shift in policy and your understanding thereof?

(Please respond using poll in side panel)

Community Bulk Purchasing

Aaron Sutch
Solar United Neighbors

Solarize and Solar Co-Op Programs

- Community-based bulk purchase, predetermined geographic area, single or multiple installers
  - Costs reduced through economies of scale
  - Education barriers reduced by coordinating outreach
  - Minimizes soft costs (customer acquisition, permitting)
- VA groups started in 2014 in Blacksburg, Joint initiative between Town of Blacksburg, Community Housing Partners and Solar United Neighbors
  - SUN provided RFP, roof review
  - Helped replicate and share resources
  - SUN 3,800 installations in 12 states
- Multiple organizations and models:
  - SUN, LEAP, CHP, Viridiant, SW Solar Work Group, BARC Co-op

Solarize + Co-op Impact since 2014

SOLAR UNITED NEIGHBORS

- 1,500 + installations, 11 MW of installed capacity
- Estimated $27 million in retail solar sales (local/regional installers)
- Additional technology deployment
  - Energy Efficiency
  - Battery storage
  - EV chargers (28)
- Spurs non-solarize adoption, solar tours, advocacy
- Spans all VA (from Abingdon to Arlington)
- Builds a diverse constituency to protect solar rights

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HOA Legislation

The problem:

- 2014 law established ‘reasonable restrictions’ for HOAs
- Since 2014, estimated over 300 installations blocked by HOAs ‘unreasonably’; an estimated >$7 million in solar sales
- Single biggest barrier to residential solar installations in VA

The Solution: SB 504 (Petersen) HB 414 (Delaney)

- SUN-led coalition, broad, bipartisan support, worked with HOA reps
- Defines what is ‘unreasonable’: Increases cost by 5% or decreases production by 10%
- Established by independent, NABCEP Installer licensed in Virginia

Community-wide access, benefits

The Solar Workgroup of SWVA

- Two commercial-scale RFPs included approximately 20 buildings, nearly 4 MW
- Over 13 buildings are moving forward with ~3 MW of projects in Wise, Dickenson, and Lee Counties. On schools, a business, low-income housing, and local government buildings.

Norfolk Qualified Opportunity Zones

- Norfolk local installer training

Bridging the Gap Solar Installation Training

- Union Hill Community

Give Solar Harrisonburg

- Gemeinschaft Home/ Our Community Place

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DMME Resources and Programs

Carrie Hearne
Department of Mines, Minerals and Energy
Solar Program Manager

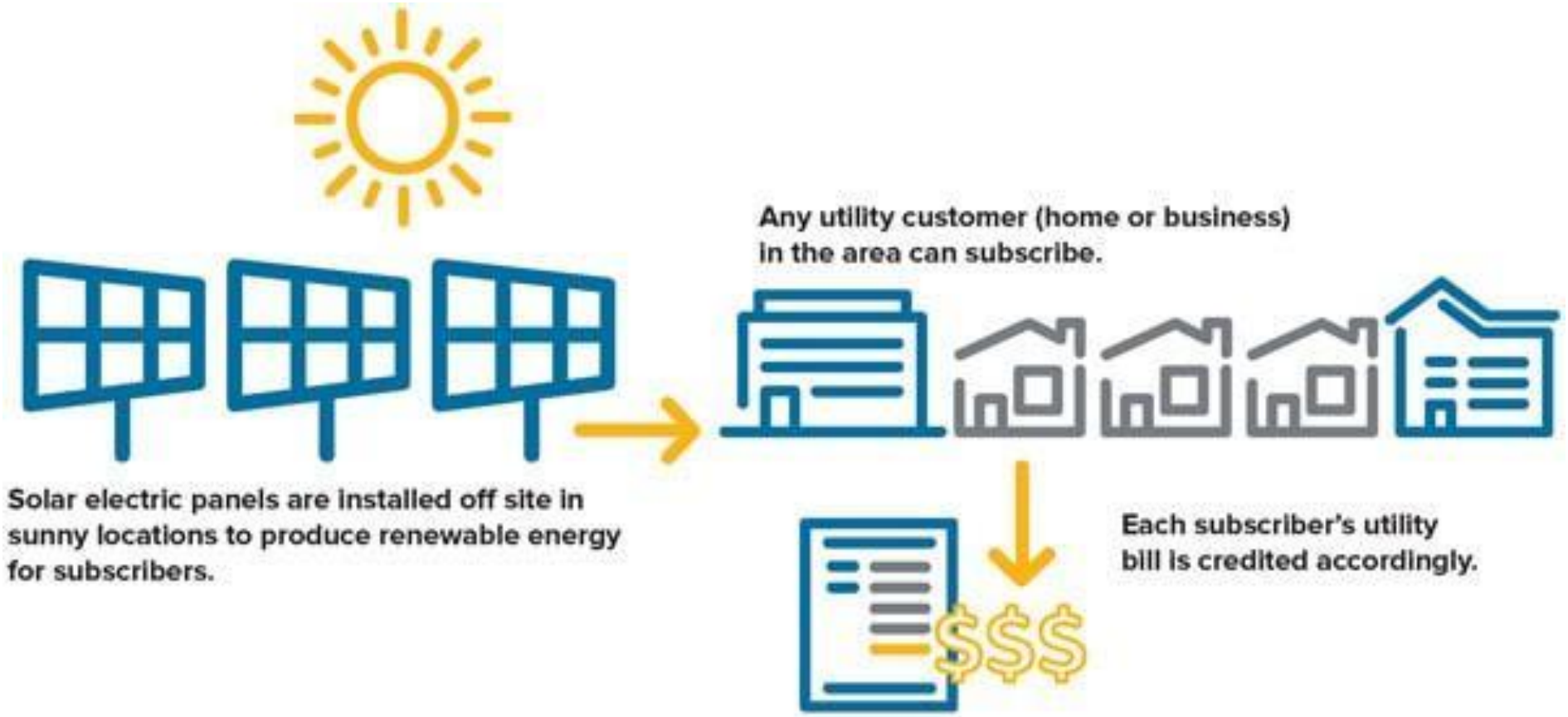
Clean Energy Advisory Board, LMI Solar Access Fund

- Established in 2019 to create “Low to Moderate Income (LMI) Solar Loan and Rebate Fund”
- Goal to reduce energy burden through solarization
- Energy efficiency prerequisites (12% reduction required)
- Customer eligibility up to 80% of area median income
- Focus on single family owner-occupied homes
- Board seats expanded in 2020, Pilot program Sunset lifted
- Submitting comments to SCC on Shared Solar rulemaking

https://dmme.virginia.gov/de/CleanEnergyAdvisoryBoard2019.shtml

Photo credit: GRID Alternatives Mid Atlantic

Shared Solar, MF Shared Solar Programs



Source: Solar Tribune

DMME Now Offering SolSmart Technical Assistance

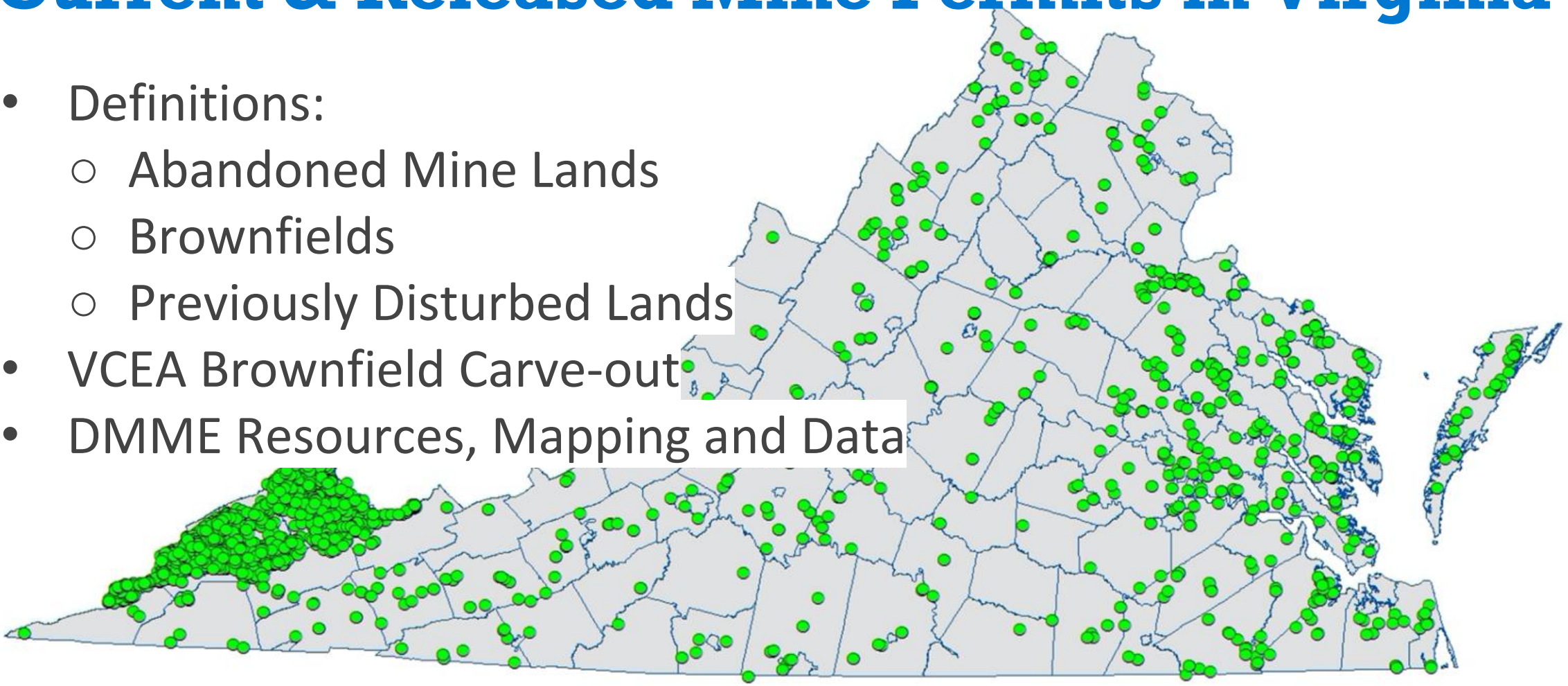
- SolSmart is a national designation program to recognize localities for encouraging solar energy growth.
- DMME & UVA offering no-cost technical assistance to localities for SolSmart designation
- Currently working in Middle Peninsula, Southside, SW 2.0
- LOCALITIES may request a consultation

https://dmme.virginia.gov/de/SolSmart.shtml

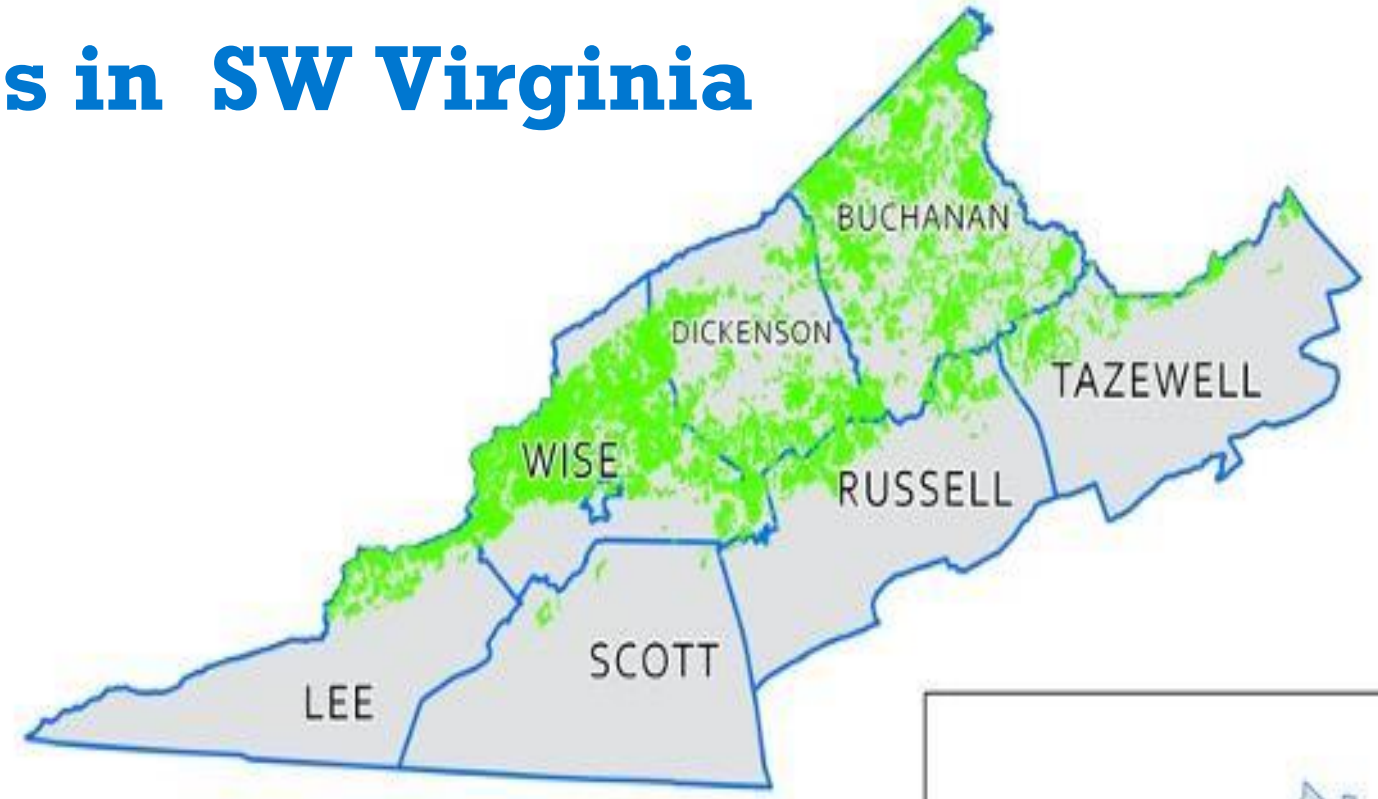
Eight SW Virginia communities receive SolSmart designation (2019)
Photo credit: Chelsea Barnes, Appalachian Voices

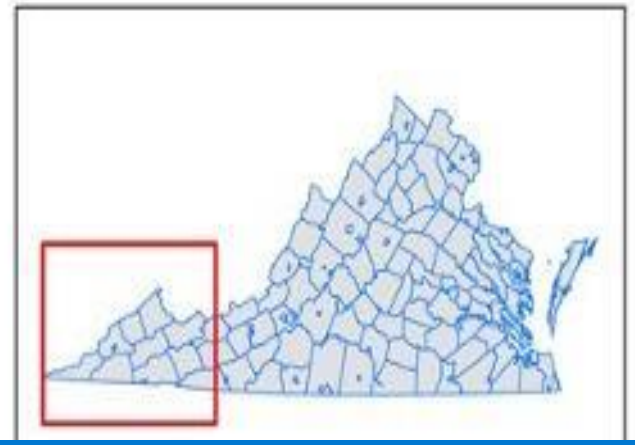
Current & Released Mine Permits in Virginia

- Definitions:
  - Abandoned Mine Lands
  - Brownfields
  - Previously Disturbed Lands
- VCEA Brownfield Carve-out
- DMME Resources, Mapping and Data



Coal Mined Lands in SW Virginia





Coalfield region development opportunities

Workforce Development Resources

NABCEP certification *encouraged* for solar companies to have at least one staff board certified
https://www.nabcep.org/

Virginia Energy Workforce Consortium
http://virginia.getintoenergy.com/

SHINE, the Solar Hands-On Instructional Network of Excellence www.shine.energy

Audience Poll Question

Q: Would you like to receive more information about incentives for clean energy businesses in Virginia?

(Please respond using poll in side panel)

Audience Q&A

Please type your question
in the Q&A panel.

Submit Questions in Q&A on Right Panel

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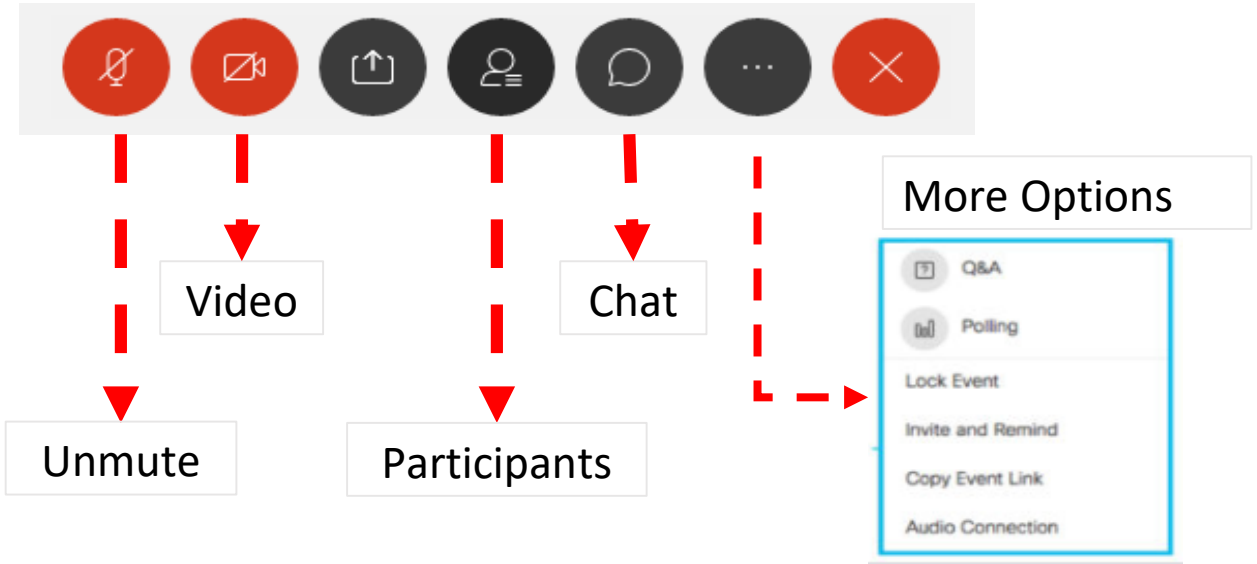
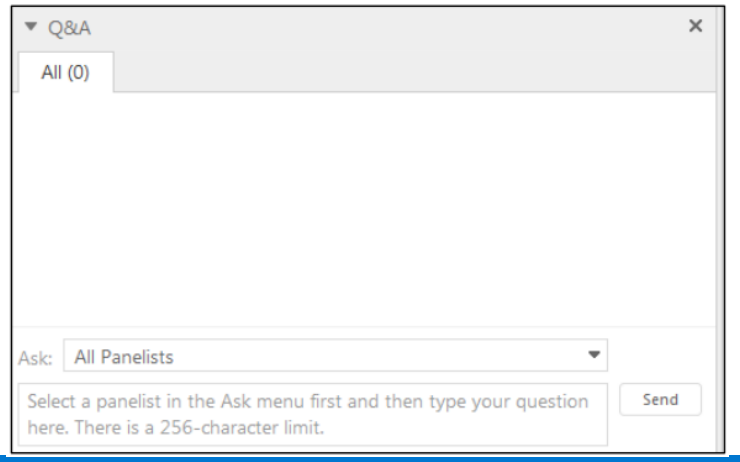


Q&A Panel on the right:



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Thank you for attending

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